

PROTECTED PRODUCTIVE LANDSCAPE

CITRUSVIL

A way to strike a balance between nature conservation and production in territories of high environmental value





About the program

Since 2016, Citrusvil has worked together with ProYungas Foundation. The Protected Productive Landscape Program (PPP, for its acronym in Spanish) seeks to integrate different production activities with the preservation of natural goods (biodiversity, soil, water) and services (water and climate regulation, carbon, pollination).

Through this practice, we strike a balance between production and nature conservation in territories of high environmental and social value.



«In order to identify appropriate ways to link the different production activities with the maintenance of important wild areas, we are part of the Protected Productive Landscape Program as a benchmark of the citrus activity in northwestern Argentina. This is a direct contribution to the Green Deal, promoted by the European Union, one of our main markets, and it reaffirms our commitment to a sustainable future.»

Agustina Lucci, Sustainability Manager at Grupo Lucci.

Lines of Work

- 1. Land-use Planning.** This addresses the use given to the entire area of the PPP, including current and future production activities and the environmental and social context where they are carried out.
- 2. Environmental and Social Monitoring and Assessment.** This defines the different variables (indicators) that will be monitored to ensure the fulfillment of the objectives.
- 3. Continuous Improvement in the Socio-environmental Performance.** This focuses on internal production and operation processes in order to identify phases or critical stages from an environmental and social point of view that will enable the incorporation of improvements in the performance of the company or production organization, within a framework of continuous improvement.



4. Internal and External Communication. This develops communication actions for the company, both internal and external, in relation to the implementation of the PPP Program.

5. Strategic Alliances with Territorial Stakeholders. This includes the tasks of institutional linkage and alliances of the PPP with the different social stakeholders that make up the environment of the company or production organization.



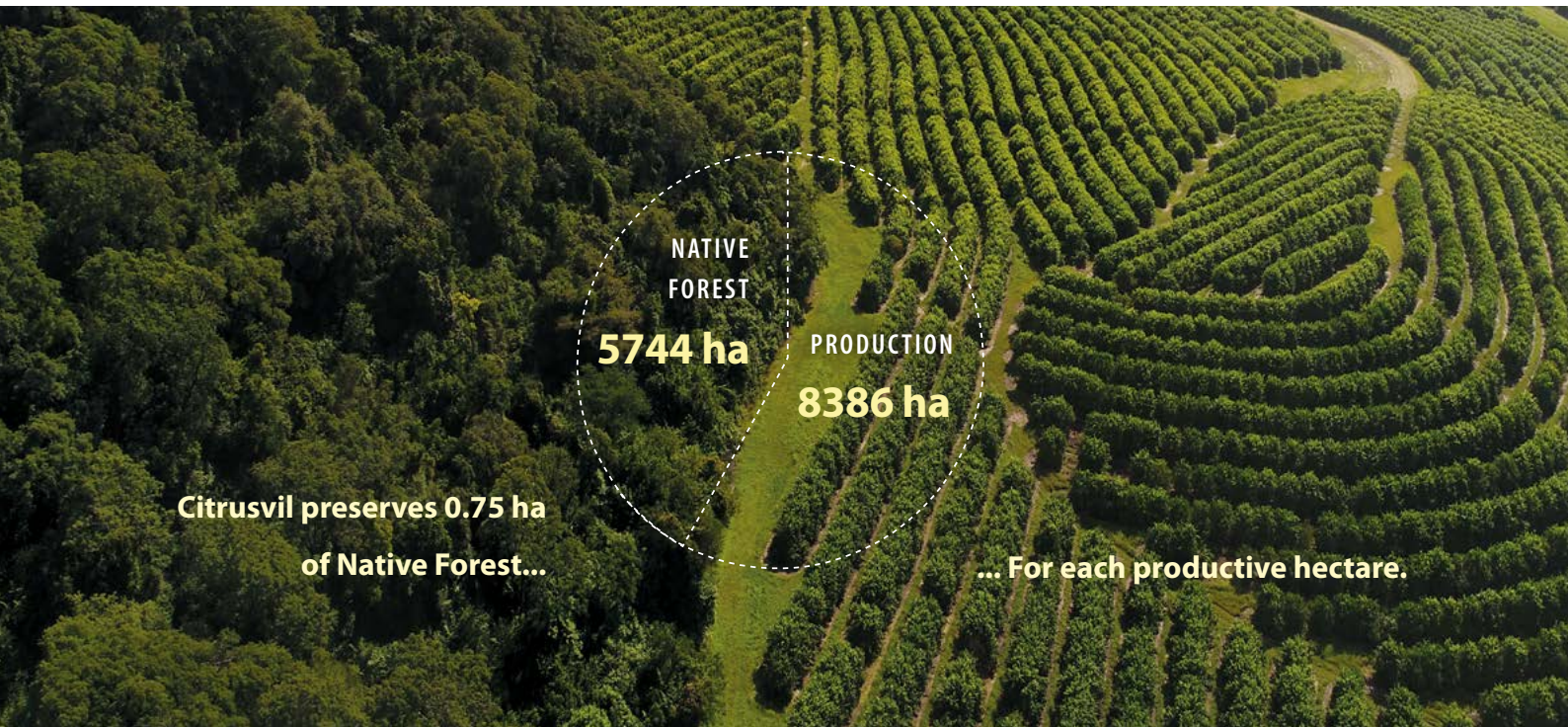
A Protected Productive Landscape is a territory that includes production areas and wildlife areas and contributes to their consistent integration.

ACTIONS UNDERTAKEN

1. Land-use Planning

Zoning allows for the identification of suitable areas for different production management practices and natural areas that can ensure the maintenance of biodiversity, considering the regional conservation context.

- Through the environmental characterization of 23 orchards located in the province of Tucumán, Argentina, the ones with greatest environmental value were identified: Don Vicente, Ischilón, La Cruz, San Rafael and Los Sosa.
- A land-use zoning of these orchards was carried out, in compliance with the categories established by the Law on Land-use Planning of Native Forests (OTBN, for its acronym in Spanish) of the province of Tucumán.
- An action plan, with specific protection and sustainable management activities, and a monitoring program for biodiversity and ecosystem services were developed.



SALTA

CATAMARCA

SANTIAGO
DEL ESTERO

TUCUMÁN

Reserva Don Vicente

Don Vicente

La Cruz

San Rafael

Los Sosa

Ischilon

- | | |
|------------------|------------------|
| 1. El Rodeo | 11. San Juan |
| 2. La Ramada | 12. Cevil Pozo |
| 3. El Chañar | 13. Colonia I |
| 4. El Banco | 14. Cruz Alta |
| 5. La Paz | 15. Monte Grande |
| 6. La Granja | 16. Caspinchango |
| 7. Los Nogales | 17. Santa Lucía |
| 8. Villa Carmela | 18. Yacuchina |
| 9. San Pablo | 19. Alpachiri |
| 10. El Corte | |

2. Environmental and Social Monitoring and Assessment

MAMMAL SURVEY

Knowing what species of mammals live in the PPPs is important because of the role they play in numerous ecological processes and in the provision of ecosystem services. The diversity and composition of mammal species are indicators of the quality of the environment.



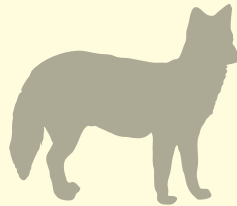
In 2017 and 2022, camera-trap surveys were carried out in Don Vicente, Ischilón, La Cruz and San Rafael orchards.



Total survey effort =
984 days/camara



14 species in forest areas
(The tayra was the most frequently seen species)



6 species in production areas
(Foxes were the most frequently seen species)

* 14 species in total in the PPP.



Don Vicente Orchard: 12 species



La Cruz Orchard: 7 species



Ischilón Orchard: 9 species



San Rafael Orchard: 8 species

CARNIVORES: 7 species (3 of them are felines) - **Ecological role:** they regulate the populations of prey species (for example, rodents).

HERBIVORES: 3 species - **Ecological role:** they are seed dispersers and have an impact on the presence of forest species.

OMNIVORES: 4 species - **Ecological role:** they are prey for other animals.



BIRD SURVEY

Some bird species are good indicators of environmental quality and, like mammals, they play a key role in the ecosystem and in the provision of ecosystem services, such as the regulation of insect populations and pollination.

During 2020 and 2022, bird surveys were carried out both in Don Vicente and San Rafael Orchards.



115 bird species were registered



Don Vicente Orchard: Identification of 81 species belonging to 32 families.



San Rafael Orchard: Identification of 79 species belonging to 31 families.



More than half of the species identified feed on insects, performing the role of controlling insect populations.



18 species are migratory birds that make use of Don Vicente Orchard on their journey.



Most of the species were identified in forest or riparian areas, which highlights the importance of preserving these environments.



Three species that are included in the Threatened Category were identified: the Turquoise-fronted amazon (Threatened in Argentina), the Dusky-legged Guan and the Yellow-striped Brush-finch (considered as Vulnerable in Argentina).



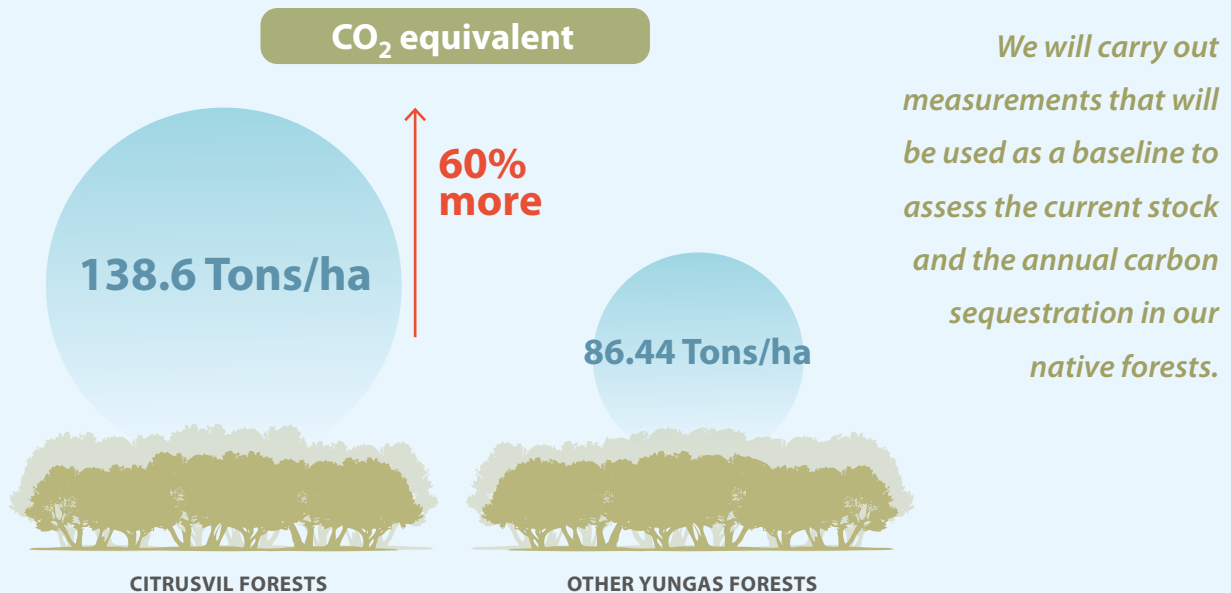
3. Continuous Improvement in the Socio-environmental Performance

Incorporating improvements in internal production and operation processes enables the optimization of their different stages within the framework of continuous improvement in the socio-environmental performance.

As part of this line of work, in 2021, a carbon stock assessment was carried out in native forests and citrus plantations at Don Vicente Orchard. During the same period, an assessment of the pollination ecosystem service and restoration actions of the dam within the Don Vicente Orchard were carried out.

CARBON STOCK ASSESSMENT IN NATIVE FORESTS

Citrusvil's forests comply with the ecosystem service of carbon storage. Don Vicente Orchard, in particular, has 1,411 hectares of native forests with a total carbon stock of almost 200,000 tons (138.6 tons/ha). This value is higher than the reference values that are known for similar Yungas forests (86.44 tons/ha), indicating that the forests within the orchard are well-preserved.



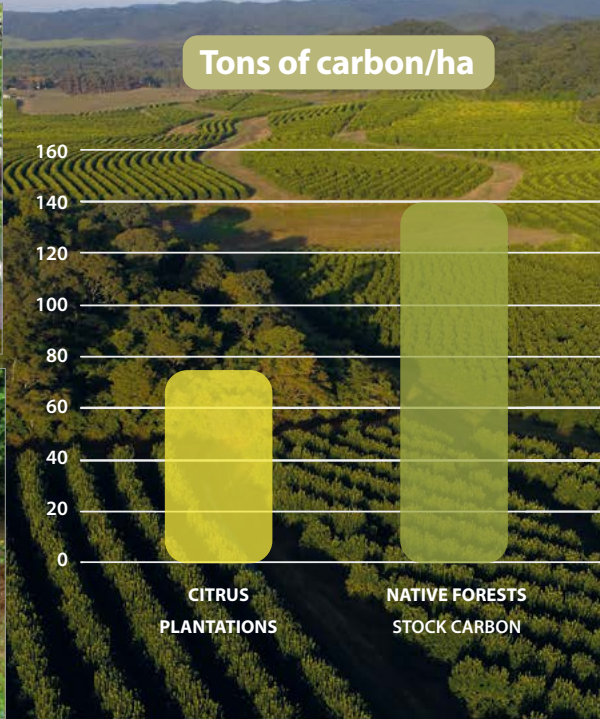
CARBON STOCK ASSESSMENT IN CITRUS PLANTATIONS

Citrusvil's vertical integration is of great value in terms of carbon sequestration.

Citrusvil and ProYungas have worked on the methodological development for estimating carbon stock in lemon plantations. Citrus trees store carbon during their growth, and carbon stock can be accounted for in the company's carbon balance calculations.

Through the 6,956 ha of Citrusvil's lemon plantations, 117,556 tons of CO₂ equivalent are captured annually, that is, almost 16.90 tons of CO₂ equivalent for each productive hectare per year, which could offset the carbon footprint of the company.

The carbon stock of citrus plantations at Don Vicente Orchard is 74.94 tons/ha, a value similar to that found in other citrus production sites within the province.



Citrus plantations are an important carbon reservoir, since they can store more than half of the carbon that is captured in native forests.

ASSESSMENT OF THE POLLINATION SERVICE

Guaranteeing the pollination ecosystem service is essential both for Citrusvil and for its environment. In addition to the benefit of pollination for citrus production, the native forests that Citrusvil protects help maintain the habitat of pollinators, allowing them to fulfill their function in the company's and neighboring crops and natural environments.

In Argentina, almost 74% of the crops, including citrus fruits, depend directly or indirectly on pollinators.

In 2021, a pollination assessment was carried out in the lemon plantations at Don Vicente Orchard. Taking into account the proximity of citrus fruits to natural environments, we came to the conclusion that:

- In plantations where native pollinators are not present, lemon production is almost 40% lower.
- Forests act as reservoirs for native pollinators that have the potential for maintaining/improving lemon production.
- Wildlife corridors between plantations facilitate the movement of pollinators.
- There is greater diversity and abundance of native pollinators in plantations that are close to native forests.



RESTORATION OF THE DAM WITHIN DON VICENTE ORCHARD

In 2021, the restoration of 1.3 hectares around the dam of Don Vicente Orchard was carried out. 150 trees of native species present on the property were planted, such as Lapachos (*Handroanthus Impetiginosus*) and Guayacanes (*Libidibia Paraguariensis*). This restoration will be monitored over the long term to verify the development of the planted trees and to follow up on the recovery of the area.



4. Internal and External Communication

Different communication actions with internal and external impact were developed to spread the PPP concept. Knowledge was shared through education programs developed by Fundación Vicente Lucci with educational actions in primary and secondary schools in the area of influence. The audiovisual materials developed were very useful to bring the topic and spread the actions of the Protected Productive Landscape Program in Citrusvil, together with Citrusvil's social investment.




5. Strategic Alliances with Territorial Stakeholders

PRIVATE CONSERVATION: DON VICENTE RESERVE

In 2017, Citrusvil formalized the creation of Don Vicente Reserve, which became part of the Argentine Network of Private Natural Reserves. This reserve is located within Don Vicente Orchard and has almost 1,500 hectares of Yungas native forests. Its characteristics and strategic location make it a natural area of great relevance for the region.

- It protects forests of Sierra de Medina mountain range, a key site for the conservation of the Yungas in the province of Tucumán.
- It contributes to the effective protection of areas of high conservation value (Category I) of the Law on Land-use Planning of Native Forests of the province of Tucumán.
- It maintains well-preserved forests.
- It is home to mammal species that are key for conservation.
- It represents a carbon reservoir with values higher than those found in similar forests.
- It provides habitat for native pollinators that benefit natural vegetation and the company's and neighboring production.
- It is combined with other PPP initiatives, strengthening regional preservation actions while increasing local preservation values.



Visit the Argentine Network of Private Natural Reserves website:



[Click Here](#)

"Sustainability is at the core of our business decisions and we are committed to preserve the natural resources for future generations.

We are production and future"

Martín Carignani, Citrusvil CEO.

WATCH OUR
VIDEO ABOUT
SUSTAINABILITY



Click Here





proyungas.org.ar



CITRUSVIL
LEMON GROWING & PROCESSING

citrusvil.com.ar